

REMARKS

Claims 1-17 are pending; claims 9, 10 and 16 have been amended and claim 17 has been added. Support for the amendment to claim 9 appears, inter alia, on page 12, line 39 to page 13, line 19, for claim 10 on page 6, lines 19-24 and line 34 to page 7, line 4 and for claim 16 on page 12, line 34 to page 13, line 14. Support for claim 17 can be found, inter alia, in claims 9, 10 and 16 and on page 12, lines 10-16 and page 13, lines 10-14.

Claims 2, 9, 10 and 16 stand rejected as being anticipated by Houseman et al. (US 4,033, 133 and Taguchi et al. (US 6,733,552).

Houseman discloses a converter comprising three sections, a mixer section, a combustion section and heat exchanger section, for producing hydrogen-rich gas.

Liquid fuel mixed with air is vaporized in a mixing section and sprayed into the combustion section. The phrase "vaporized" means that the liquid fuel is sprayed so that little droplets in mixture with air create a kind of fog in the combustion section (col. 3, lines 38-41). The liquid fuel is not heated so that the gaseous fuel is mixed with air in the mixing section. In the combustion section, the vaporized air/liquid fuel mixture is ignited by a spark plug. A catalytic bed in the form of a cylinder with a perforated top wall and a perforated bottom wall to permit hot gases to flow from combustion region through the catalytic bed into the heat exchange section is used. The catalytic bed contains particles (col. 3, lines 43-50).

In contrast to this, amended claim 9 claims a converter, comprising a

vaporization space being located within the conversion space, the vaporization section and the conversion section being connected to one another so that the heat transport from the conversion space into the vaporization space is possible to vaporize the liquid fuel with the aid of the heat reaction of the partial oxidation, wherein the catalyst is used in the form of a honeycomb. The phrase "vaporizing" means bringing the liquid fuel into its gaseous state.

Houseman does not disclose that a vaporization zone and a combustion zone shall be connected such that heat transport is made possible so that liquid fuel can be evaporated, because Houseman discloses that liquid fuel is vaporized into little droplets by spraying. Therefore the converter that is claimed in amended claim 9 has not been anticipated by Houseman et al.

After the start-up operation the fuel is heated and vaporized in coil 62 outside of the conversion space 48. This feature also does not anticipate claim 9, which requires the liquid fuel to be vaporized in the vaporization space which is within the conversion or combustion space.

Finally, applicant's have not been able to find in Figures 1 or 5 or in col. 3, line 1-67 or in col. 4, lines 1-29 that Houseman teaches use of a honeycomb catalyst.

Thus, Houseman does not anticipate claim 9.

Claim 10 is not anticipated by Houseman because this reference is directed to a process for producing hydrogen while claim 10 is directed to a process for a catalytic conversion of fuel for removing oxides of nitrogen from exhaust gases of internal

combustion engines by reducing the oxides of nitrogen with carboxylic acids and/or anhydrides, which are oxidation products of the fuel. In this vein Houseman does not teach mixing exhaust gases in a converter. Thus, claim 10 is clearly patentable over Houseman.

Claim 16 is directed to a converter for a catalytic conversion of fuel, comprising an evaporator pipe, which consists of cylindrical recess for fuel that is situated in the interior of the catalytical converter, the converter being designed as a honeycomb element.

The converter of claim 16 is not anticipated by Houseman, because Houseman does not disclose a converter bearing something that can be used for the evaporation of fuel. The converter disclosed by Houseman can not be used for the evaporation of liquid substrates. Liquid fuel is vaporized by spraying according to Houseman et al..

Further, as previously discussed, the converter of Houseman is not designed as a honeycomb element. Claim 16, accordingly, is patentable over Houseman.

Taguchi et al. disclose a hydrogen generating apparatus comprising a fuel feeding part, a water feeding part, an oxidant gas feeding part, a reforming catalyst body, a heating part for said catalyst, and a carbon monoxide shifting catalyst. In the apparatus fuel and water are fed to the heated reforming part, an oxidant gas is mixed with the reformed gas, and the product gas mixture is purified from carbon monoxide. The fuel is evaporated by the steam so that a raw material gas is prepared.

In contrast to this, in amended claim 9 of the present application a converter for

a catalytic conversion of fuel is claimed, comprising a vaporization space being located within the conversion space and the vaporization space and the conversion space being connected so that heat transport from the conversion space into vaporization space is possible to vaporize the fuel with the aid of the heat of the reaction of the partial oxidation.

The converter claimed by amended claim 9 has not been anticipated by Taguchi et al., because in this document the fuel is evaporated by the fed steam and not by the heat of the subsequent reaction. Therefore, no heat transport from the conversion space into the vaporization space is disclosed in Taguchi et al..

Moreover, space 24 is not a vaporization space since the fuel is in the gaseous state before it arrives in space 24 (col. 10, lines 31-35). Further the catalyst body 24 space does not have separate feeds leading to it, i.e., the separate feeds combine prior to arriving in space 24.

In claim 16 of the present invention, a converter is claimed comprising an evaporator pipe which consists of a cylindrical recess for fuel and is situated in the interior of the catalytic converter that is designed as a honeycomb element. The exhaust gas and/or intake is introduced separately from the fuel.

The converter that is claimed in claim 16 has not been anticipated by Taguchi et al., because as discussed above, Taguchi et al., disclose that fuel and steam from 21 and 22 of Fig. 3 are premixed and vaporized prior to entering space 24.

Thus, Taguchi does not disclose an evaporation pipe consisting of a cylindrical

recess, situated in the interior of a catalytic converter.

Taguchi et al. disclose a process for producing hydrogen by reforming fuel like hydrocarbon fuel, alcohol fuel or ether fuel by mixing the fuel with steam in the presence of a catalyst and subsequent oxidation to remove carbon monoxide by converting it to carbon dioxide.

In contrast claim 10 is directed to a process for a catalytic conversion of liquid fuel for removing oxides of nitrogen from exhaust gases of internal combustion engines by reducing these oxides of nitrogen with carboxylic acids and/or anhydrides which are oxidation products of the fuel. The two processes are distinct such that claim 10 is clearly patentable over Taguchi.

Favorable action by the examiner is solicited.

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Respectfully submitted,

KEIL & WEINKAUF

A handwritten signature in black ink, appearing to read "Edward J. Smith". The signature is fluid and cursive, with the first name "Edward" being the most prominent part.

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